CLAIMS

What is claimed is:

1. A laser processing apparatus, comprising:

a laser oscillator for emitting laser light;

an fθ lens positioned relative to the laser oscillator for converging the emitted laser light onto a workpiece; and

a wavelength selector interposed between the laser oscillator and the fθ lens for separating a light ray having a specified wavelength out of the laser light.

2. The laser processing apparatus according to Claim 1, wherein the wavelength selector includes a prism disposed along a light axis of the laser light, and a spatial filter having a focusing lens and a shield for passing only a light ray having a specified wavelength.

3. The laser processing apparatus according to Claim 2, wherein the laser light is transmitted through the prism a plurality of times.

4. The laser processing apparatus according to Claim 3, wherein the wavelength selector includes a pair of reflection mirrors on either side of the prism, for causing the laser light to pass through the prism more than once.

5. The laser processing apparatus according to Claim 1, wherein the wavelength selector includes a plurality of prisms disposed along a light axis of the laser light, and a spatial filter having a focusing lens and a shield for passing only a light ray having a specified wavelength.

6. The laser processing apparatus according to Claim 5, wherein the plurality of prisms are disposed between a pair of opposed reflection mirrors.

7. The laser processing apparatus according to Claim 1, wherein the wavelength selector includes a diffraction grating disposed along a light axis of the laser light, and a shield for passing only a light ray having a specified wavelength.

8. The laser processing apparatus according to Claim 1, wherein the wavelength selector includes a wave plate disposed along a light axis of the laser light for polarizing the laser light into different phase shifts in accordance with wavelengths, and a polarizer for passing only a light ray polarized into a phase shift corresponding to a specified wavelength.

9. A laser processing apparatus, comprising:

a laser oscillator for emitting laser light;

an fθ lens positioned relative to the laser oscillator for converging the emitted laser light onto a workpiece;

a scanning member for guiding the laser light into the fθ lens in a scanning manner; and

a wavelength selector interposed between the laser oscillator and the fθ lens for separating a light ray having a specified wavelength from the laser light.

10. The laser processing apparatus according to Claim 9, wherein the scanning member is a galvanometer.

11. A laser processing method comprising:

emitting laser light from a laser oscillator;

separating a light ray having a specified wavelength out of the laser light by a wavelength selector; and

converging the separated light ray using an fθ lens onto a workpiece for machining the workpiece.

12. The laser processing method according to Claim 11, wherein the wavelength selector includes a prism disposed along a light axis of the laser light, a spatial filter having a focusing lens and a shield for passing only a light ray having a specified wavelength, and a pair of reflection mirrors disposed on either side of the prism, and wherein separation of the light ray having the specified wavelength

out of the laser light is effected through transmitting the laser light a plurality of times through the prism using the pair of reflection mirrors.